

# Memorandum

To: Stephanie Vaughn (USEPA)

Elizabeth Buckrucker (USACE)

From: Scott Kirchner (CDM Smith)

George Molnar (CDM Smith)

Date: March 6, 2013

Re: Status Report (March 2013)

CPG Oversight of Chemical Water Column Monitoring High Flow Event

Lower Passaic River Restoration Project

On behalf of the United States Environmental Protection Agency (EPA) and the United States Army Corps of Engineers (USACE), Kansas City District, CDM Federal Programs Corporation (CDM Smith) is providing oversight of the Cooperating Parties Group (CPG) remedial investigation/feasibility study (RI/FS) field activities associated with chemical water column monitoring (CWCM), and the collection of chemical data in the Lower Passaic River (LPR).

CDM Smith oversight activities were conducted February 27, 28, and March 4, 2013. Oversight included observations of the collection of samples from select river miles (RMs) in the LPR and Third River taken during the first of two proposed high flow events. In addition, CDM Smith also collected split samples at select locations. All activities were conducted in accordance with the CPG *Quality Assurance Project Plan/Field Sampling Plan Addendum (QAPP/FSP), Remedial Investigation Water Column Monitoring/Small Volume Chemical Data Collection*, Revision 2, August 2011.

Photographs of field activities are in Attachment 1. Copies of the logbook notes are in Attachment 2. Copies of chain of custody records are in Attachment 3.

# **General Summary**

Oversight consisted of observations of in-river and field facility activities conducted by CPG contractors AECOM. Ocean Surveys Incorporated (OSI) provided vessel and sampling support.

All sample locations were verified by oversight staff using the map provided in CPG's QAPP/FSP. Review of the United States Geological Survey (USGS) gauging station at Dundee Dam indicated that flows slightly exceeded the required rate of 3000 cubic feet per second (cfs) to be considered a high flow event.

In summary, the following locations were sampled during this event:

- Dundee Dam
- RM 0
- RM 1.4
- RM 4.2

Stephanie Vaughn March 6, 2013 Page 2

- RM 6.7
- RM 10.2
- Saddle River
- Second River
- Third River

For this sampling event, CDM Smith accepted split samples from the following locations taken over the course of the rising, peak, and falling hydrograph:

- Third River (during second rising limb and peak of the hydrograph)
- RM 6.7 (during peak of the hydrograph)
- RM 10.2 (during first rising limb, peak, and falling limb of the hydrograph)

Throughout each day, samples were collected and shuttled back to the CPG facility for processing and packing. Oversight of activities at the CPG field facility indicated a relatively organized system of sample logging, labeling, chain of custody generation, and packing given the large volume of samples and bottleware involved. All sampling packing activities were conducted in accordance with AECOM's QAPP.

# **Summary of Daily Activities**

The following is a summary of daily activities observed during CDM Smith's oversight of CWCM activities:

#### February 27, 2013

Oversight staff observed field activities at the Third River during the second rising limb and peak of the hydrograph sampling events. Spilt samples were also collected during these two events. The first rising limb event occurred late the previous night during which no oversight was conducted.

Initially it was thought that oversight crews would be allowed to accompany CPG on their vessels to locations on the LPR. However, due to the number of field staff and vessel size, oversight staff were unable to accompany field crews to RM 10.2, a targeted location for split samples. This was a last minute notification and all other vessels departed, so CDM Smith transferred split sample bottle sets to CPG for filling. Splits were collected during the first rising limb event at RM 10.2 from both sample intervals (three feet below surface and three feet above river bottom). Other CPG crews sampled at all other locations on the LPR. The second rising limb sampling event on the LPR occur late in the night. No oversight was conducted.

# February 28, 2013

Oversight staff observed the collection of surface water samples during the peak event at RMs 4.2 and 6.7. Spilt samples were collected from RM 6.7 and 10.2. Oversight crews were unable to accompany crews to the RM 10.2 location due to the size of the vessel.

# March 4, 2013

Oversight staff observed field facility activities and accepted a split sample from RM 10.2 taken during the falling limb of the hydrograph.

Both CDM Smith's split samples and corresponding CPG samples are presented in Table 1. Copies of CDM Smith's signed chain of custodies can be found in Attachment 3.

Stephanie Vaughn March 6, 2013 Page 3

# **QAPP Compliance**

All field activities were conducted in accordance with QAPP procedures.

# Table 1 Cooperating Parties Group and CDM Smith Split Sample Identification Chemical Water Column Monitoring High Flow Event 1 Oversight Lower Passaic River Restoration Project Lower Passaic River, New Jersey

Location	CPG Sample ID	CDM Split Sample ID	QC Samples	Hydrograph Event	Collection Date	Analysis
Third River	12C-CE12-T3R1-AS	12C-CE12-T3R1-AS-C		second rising limb	2/27/2013	
RM 10.2	12C-CE11-T102-BS	12C-CE11-T102-BS-C		first rising limb	2/27/2013	PAH/Alkyl PAHs, pesticides, PCB
Third River	12E-CE20-T3R1-AS	12E-CE20-T3R1-AS-C	MS/MSD **	peak	2/27/2013	congeners, PCDD/PCDF, metals plus Ti
RM 10.2	12C-CE11-T102-AS	12C-CE11-T102-AS-C		first rising limb	2/27/2013	(total and dissolved), mercury (total and
RM 6.7	12C-CE20-T067-BS	12C-CE20-T067-BS-C		peak	2/28/2013	dissolved), methyl mercury (total and
RM 6.7	12C-CE20-T067-BS	12C-CE20-T067-BS-CX	Duplicate *	peak	2/28/2013	dissolved), hexavalent chromium
RM 10.2	12C-CE20-T102-AS	12C-CE20-T102-AS-C		peak	2/28/2013	(dissolved), TOC, DOC, POC, SSC, TDS
RM 10.2	12C-CE21-T102-AS	12C-CE21-T102-AS-C		falling limb	3/4/2013	

CPG - Cooperating Parties Group

DOC - dissolved organic carbon

ID - identification

MS/MSD - matrix spike/matrix spike duplicate

PAH - polycyclic aromatic hydrocarbon

PCB - polychlorinated biphenyl

PCDD/PCDF - polychlorinated dibenzodioxins/polychlorinated dibenzofurans

POC - particulate organic carbon

QC - quality control

SSC- suspended solids concentration

TDS - total dissolved solids

Ti - titanium

TOC - total organic carbon

\* - field duplicate sample of CDM split sample 12C-CE20-T067-BS-C

\*\* - MS/MSD only for PAH/Alkyl PAHs, total and dissolved mercury and methyl mercury, dissolved hexavalent chromium, TOC, POC and DOC



# Attachment 1 Photographs of Field Activities



Photo 1 – Clean tubing used for sampling



Photo 2 – Sample collection



Photo 3 – Preparing bottleware for packing



Photo 4 – Cooler preparation for sample shipment



Photo 5 – Collection of water quality data in real-time at the Third River



Photo 6 – Rinsate blank collection

# Attachment 2 Copies of Oversight Field Logbook Notes

Loc	ation .			,			D	ate _			105
Proj	ject / (	Client									-
F											
									7	5	

Location Lower Fassar C Riverate 2-27-13 Location Convertassichion Date 12/10/02 Project / Client High Flow 12-C-CE12-13RI-45-C Project/Client USALE CWCM Kanta Lunt 5 Co Molnum notes ME: Modified Level D Q & M 10.2 Medier 35°f - rain 1200 an Departs 666 Facus En Personnel: JR CDM-Smith Objective! Collection of 12C-CE12-T3R1-AS-C #0700 Start Pump and Occept Split Samples OBB Dump OFF Supplies up hill into vehicles \* this sample is the second sample of the a singlimb. 0915 House at CPU bect ramp and hand off sample and duplicate. No room was on boat for CDM-5mith 0940 EK departs site to bag ice and mark Samples 0980 JR arrives back of ¥102712C-CE11-7102-B5-C \$1030 12E-CE20 + T3R1-A5-C Sample +1 m = 13 De 2-27-13

28 Location LPR Date 2-27-13
Project / Client High Flow Event Project / Client High Flow event 1130 JR arrives at CPG facility, JR, 5 awaits samples at RM10,2 JR Will Create Scribe PPE: ModRied Love / D Neckher! 4500 Personne! JR and EX of COMSMA Sample id is are below for upons 1500 RM10. 2 Crew arrives at facility. JR will check with them 12C-CE20- 1067-385+ Duplice Monday 5 12C-CE21-7102-15 regarding Samples. +1305 12C-CETI-TIOZ-AS-C 1045 CDM-Smith 15 Informed that the estimated 1300 Sample time CPG Sample time is now 1300 1200 COM-Smith arrives at Clo boot ramp. Els boords boot in order to split Samples at RM 6. 7 Deak facility and heads to Edison warehouse to pack up samples Sample JR head S OCPGFACILITY to Create OC'S, airbills, and abels 1310 120-CE 20-T067-B5 and 2-27-Pupicate completes coc,

28 30 Date 3-4-13<sup>31</sup> igh Flow Event Project / Client \_\_\_\_ Project / Client \_ Level D 28-13 Con-Smith Continuation of High QM 10,9 bottleuse in on the Katelyn out boot ramp amos at bugg and Carking lot in Rear completes Cocs, airbills receive simples from E 530 Arrive 600 Receive RM received 10.2 Peak Sample nead to Edisor Warphouse

# Attachment 3 Copies of Signed Chain of Custodies

USEPA

DateShipped: 2/27/2013

CarrierName:

AirbillNo: 794850839170

# **CHAIN OF CUSTODY RECORD**

Passaic - F2L Case Complete: False Cooler #: No: 2-022713-143502-0025

Lab#	Sample #	Location	Analyses	Matrix	Sample Type	Collected	Sample Time	Numb Cont	15/2/10/02/12/16/2	Preservativ e	MS/MS D
	12C-CE11-T102- AS-C	RM 10.2	PCBs (CONGENERS)	Surface Water	Field Sample	2/27/2013	13:05	1	1 liter amber	4 C	N
	12C-CE11-T102- AS-C	RM 10.2	Extra bottle	Surface Water	Field Sample	2/27/2013	13:05	1	1 liter amber	4 C	N
	12C-CE11-T102- AS-C	RM 10.2	PAH/Alkyl PAH	Surface Water	Field Sample	2/27/2013	13:05	1	1 liter amber	4 C	N
	12C-CE11-T102- AS-C	RM 10.2	Pesticides	Surface Water	Field Sample	2/27/2013	13:05	1	1 liter amber	4 C	N
	12C-CE11-T102- AS-C	RM 10.2	PCDD PCDF	Surface Water	Field Sample	2/27/2013	13:05	1	1 liter amber	4 C	N
	12C-CE11-T102- BS-C	RM 10.2	PCBs (CONGENERS)	Surface Water	Field Sample	2/27/2013	10:27	1	1 liter amber	4 C	N
	12C-CE11-T102- BS-C	RM 10.2	Extra bottle	Surface Water	Field Sample	2/27/2013	10:27	1	1 liter amber	4 C	N
	12C-CE11-T102- BS-C	RM 10.2	PAH/Alkyl PAH	Surface Water	Field Sample	2/27/2013	10:27	1	1 liter amber	4 C	N
	12C-CE11-T102- BS-C	RM 10.2	Pesticides	Surface Water	Field Sample	2/27/2013	10:27	1	1 liter amber	4 C	N
	12C-CE11-T102- BS-C	RM 10.2	PCDD PCDF	Surface Water	Field Sample	2/27/2013	10:27	1	1 liter amber	4 C	N
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	SAMPLES TRANSFERRED FROM
Special Instructions:	CHAIN OF CUSTODY#

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	20	1									
	11.0	2-27	1.7							1	
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USEPA

DateShipped: 2/27/2013

CarrierName:

AirbillNo: 794850838895

# CHAIN OF CUSTODY RECORD

Passaic - F2L Case Complete: False Cooler #: No: 2-022713-143501-0024

Lab#	Sample #	Location	Analyses	Matrix	Sample Type	Collected	Sample Time	Numb Cont	Container	Preservativ e	MS/MS D
	12C-CE12-T3R1- AS-C	Tidal 3	PCBs (CONGENERS)	Surface Water	Field Sample	2/27/2013	07:00	1	1 liter amber	4 C	N
	12C-CE12-T3R1- AS-C	Tidal 3	Extra bottle	Surface Water	Field Sample	2/27/2013	07:00	1	1 liter amber	4 C	N
	12C-CE12-T3R1- AS-C	Tidal 3	PAH/Alkyl PAH	Surface Water	Field Sample	2/27/2013	07:00	1	1 liter amber	4 C	N
	12C-CE12-T3R1- AS-C	Tidal 3	Pesticides	Surface Water	Field Sample	2/27/2013	07:00	1	1 liter amber	4 C	N
	12C-CE12-T3R1- AS-C	Tidal 3	PCDD PCDF	Surface Water	Field Sample	2/27/2013	07:00	1	1 liter amber	4 C	N
	12E-CE20-T3R1- AS-C	Tidal 3	PCBs (CONGENERS)	Surface Water	Lab QC	2/27/2013	10:30	1	1 liter amber	4 C	N
	12E-CE20-T3R1- AS-C	Tidal 3	Extra bottle	Surface Water	Lab QC	2/27/2013	10:30	1	1 liter amber	4 C	Ŋ
	12E-CE20-T3R1- AS-C	Tidal 3	PAH/Alkyl PAH	Surface Water	Lab QC	2/27/2013	10:30	4	1 liter amber	4 C	Y
	12E-CE20-T3R1- AS-C	Tidal 3	Pesticides	Surface Water	Lab QC	2/27/2013	10:30	1	1 liter amber	4 C	N
	12E-CE20-T3R1- AS-C	Tidal 3	PCDD PCDF	Surface Water	Lab QC	2/27/2013	10:30	1	1 liter amber	4 C	N

	SAMPLES TRANSFERRED FROM
Special Instructions:	CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	00	2-7-	7.13								
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USEPA

DateShipped: 2/28/2013

CarrierName:

AirbillNo: 794860385019

# CHAIN OF CUSTODY RECORD

Passaic - F2L Case Complete: False Cooler #: No: 2-022813-125951-0032

Lab#	Sample #	Location	Analyses	Matrix	Sample Type	Collected	Sample Time	Numb Cont	Container	Preservativ e	MS/MS D
	12C-CE20-T067- BS-C	RM 6.7	PCBs (CONGENERS)	Surface Water	Field Sample	2/28/2013	13:10	1	1 liter amber	4 C	N
	12C-CE20-T067- BS-C	RM 6.7	Extra bottle	Surface Water	Field Sample	2/28/2013	13:10	1	1 liter amber	4 C	N
	12C-CE20-T067- BS-C	RM 6.7	PAH/Alkyl PAH	Surface Water	Field Sample	2/28/2013	13:10	1	1 liter amber	4 C	N
	12C-CE20-T067- BS-C	RM 6.7	Pesticides	Surface Water	Field Sample	2/28/2013	13:10	1	1 liter amber	4 C	N
	12C-CE20-T067- BS-C	RM 6.7	PCDD PCDF	Surface Water	Field Sample	2/28/2013	13:10	1	1 liter amber	4 C	N
	12C-CE20-T067- BS-CX	RM 6.7	PCBs (CONGENERS)	Surface Water	Field Duplicate	2/28/2013	13:10	1	1 liter amber	4 C	N
	12C-CE20-T067- BS-CX	RM 6.7	Extra bottle	Surface Water	Field Duplicate	2/28/2013	13:10	1	1 liter amber	4 C	N
	12C-CE20-T067- BS-CX	RM 6.7	PAH/Alkyl PAH	Surface Water	Field Duplicate	2/28/2013	13:10	1	1 liter amber	4 C	N
	12C-CE20-T067- BS-CX	RM 6.7	Pesticides	Surface Water	Field Duplicate	2/28/2013	13:10	1	1 liter amber	4 C	N
	12C-CE20-T067- BS-CX	RM 6.7	PCDD PCDF	Surface Water	Field Duplicate	2/28/2013	13:10	1	1 liter amber	4 C	N
	12C-CE20-T102- AS-C	RM 10.2	PCBs (CONGENERS)	Surface Water	Field Sample	2/28/2013	14:05	1	1 liter amber	4 C	N

January 1970 B	SAMPLES TRANSFERRED FROM
Special Instructions:	CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	00	200	2-12								
	1	1-20	51/								
								1			

Page 2 of 2

USEPA

DateShipped: 2/28/2013

CarrierName:

AirbillNo: 794860385019

# CHAIN OF CUSTODY RECORD

Passaic - F2L Case Complete: False Cooler #: No: 2-022813-125951-0032

Lab #	Sample #	Location	Analyses	Matrix	Sample Type	Collected	Sample Time	Numb	S. S. Storage and Storage Stor	Preservativ e	MS/MS
	12C-CE20-T102- AS-C	RM 10.2	Extra bottle	Surface Water	Field Sample	2/28/2013	14:05	1	1 liter amber	4 C	N
	12C-CE20-T102- AS-C	RM 10.2	PAH/Alkyl PAH	Surface Water	Field Sample	2/28/2013	14:05	1	1 liter amber	4 C	N
	12C-CE20-T102- AS-C	RM 10.2	Pesticides	Surface Water	Field Sample	2/28/2013	14:05	1	1 liter amber	4 C	N
	12C-CE20-T102- AS-C	RM 10.2	PCDD PCDF	Surface Water	Field Sample	2/28/2013	14:05	1	1 liter amber	4 C	N

	SAMPLES TRANSFERRED FROM
Special Instructions:	CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	10	22	-12								
/	4.1	2-20	57)								
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USEPA

DateShipped: 3/4/2013

CarrierName:

AirbillNo: 794879724759

# CHAIN OF CUSTODY RECORD

Lower Passaic River - CWCM
Case Complete: True
Cooler #:

No: 2-030413-082028-0033

Lab#	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont		Preservative	MS/MSD
	12C-CE21-T102- AS-C	RM 10.2	PCBs (CONGENERS)	Surface Water	3/4/2013	10:00	1	1 liter amber	4 C	N
	12C-CE21-T102- AS-C	RM 10.2	Extra bottle	Surface Water	3/4/2013	10:00	1	1 liter amber	4 C	N
	12C-CE21-T102- AS-C	RM 10.2	PAH/Alkyl PAH	Surface Water	3/4/2013	10:00	1	1 liter amber	4 C	N
	12C-CE21-T102- AS-C	RM 10.2	Pesticides	Surface Water	3/4/2013	10:00	-1	1 liter amber	4 C	N
	12C-CE21-T102- AS-C	RM 10.2	PCDD PCDF	Surface Water	3/4/2013	10:00	1	1 liter amber	4 C	N

S. Charles C. Mary	SAMPLES TRANSFERRED FROM
Special Instructions:	CHAIN OF CUSTODY#

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	42	2111	7								
	110	3-4-1	5								
C		1									
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USEPA

DateShipped: 2/27/2013

CarrierName:

AirbillNo: Hand Deliver

# CHAIN OF CUSTODY RECORD

Passaic - F2L Case Complete: False Cooler #: No: 2-022713-135431-0020

Lab: EPA-DESA laboratory Lab Address: 2890 Woodbridge Ave

Lab#	Sample #	Analyses	Matrix	Sample Type	Collected	Sample Time	Num b Cont	Container	Preservati ve	MS/MS D	Sampler
	12C-CE11-T102-AS-C	Dissolved Hexavalent Chromium	Surface Water	Field Sample	2/27/2013	13:05	1	250 mL poly	4 C	N	JR
	12C-CE11-T102-BS-C	Dissolved Hexavalent Chromium	Surface Water	Field Sample	2/27/2013	10:27	1	250 mL poly	4 C	N	JR
	12C-CE12-T3R1-AS-C	Dissolved Hexavalent Chromium	Surface Water	Field Sample	2/27/2013	07:00	1	250 mL poly	4 C	N	JR
	12E-CE20-T3R1-AS-C	Dissolved Hexavalent Chromium	Surface Water	Lab QC	2/27/2013	10:30	2	250 mL poly	4 C	Y	JR
	*										

Maria Languaga	SAMPLES TRANSFERRED FROM
Special Instructions:	CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	10	2 22	7								
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USEPA

DateShipped: 2/28/2013

CarrierName:

AirbillNo: Hand Deliver

# CHAIN OF CUSTODY RECORD

Passaic - F2L Case Complete: False Cooler #: No: 2-022813-083228-0027

Lab: EPA-DESA laboratory Lab Address: 2890 Woodbridge Ave

Lab#	Sample #	Analyses	Matrix	Sample Type	Collected	Sample Time	Num b Cont	Container	Preservati ve	MS/MS D	Sampler
	12C-CE11-T102-AS-C	Total Organic Carbon	Surface Water	Field Sample	2/27/2013	13:05	1	250 mL poly	4 C	N	JR
	12C-CE11-T102-AS-C	Particulate/Dissolved organic carbon	Surface Water	Field Sample	2/27/2013	13:05	1	250 mL poly	4 C	N	JR
	12C-CE11-T102-AS-C	Suspended solids/Total dissolved solids	Surface Water	Field Sample	2/27/2013	13:05	1	1 L poly	4 C	N	JR
	12C-CE11-T102-BS-C	Total Organic Carbon	Surface Water	Field Sample	2/27/2013	10:27	1	250 mL poly	4 C	N	JR
	12C-CE11-T102-BS-C	Particulate/Dissolved organic carbon	Surface Water	Field Sample	2/27/2013	10:27	1	250 mL poly	4 C	N	JR
	12C-CE11-T102-BS-C	Suspended solids/Total dissolved solids	Surface Water	Field Sample	2/27/2013	10:27	1	1 L poly	4 C	N	JR
	12C-CE12-T3R1-AS-C	Total Organic Carbon	Surface Water	Field Sample	2/27/2013	07:00	1	250 mL poly	4 C	N	JR
	12C-CE12-T3R1-AS-C	Particulate/Dissolved organic carbon	Surface Water	Field Sample	2/27/2013	07:00	1	250 mL poly	4 C	N	JR
	12C-CE12-T3R1-AS-C	Suspended solids/Total dissolved solids	Surface Water	Field Sample	2/27/2013	07:00	1	1 L poly	4 C	N	JR
	12E-CE20-T3R1-AS-C	Total Organic Carbon	Surface Water	Lab QC	2/27/2013	10:30	2	250 mL poly	4 C	Y	JR
	12E-CE20-T3R1-AS-C	Particulate/Dissolved organic carbon	Surface Water	Lab QC	2/27/2013	10:30	2	250 mL poly	4 C	Y	JR

	SAMPLES TRANSFERRED FROM
Special Instructions:	CHAIN OF CUSTODY #
	772-72-72-72

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	10	0 -									
	46	2-28	-17								
	0	U									

Page 2 of 2

USEPA

DateShipped: 2/28/2013

CarrierName:

AirbillNo: Hand Deliver

Special Instructions:

#### **CHAIN OF CUSTODY RECORD**

Passaic - F2L Case Complete: False Cooler #: No: 2-022813-083228-0027

Lab: EPA-DESA laboratory Lab Address: 2890 Woodbridge Ave

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Lab #	Sample #	Analyses	Matrix	Sample Type	Collected	Sample Time	Num b Cont	Container	Preservati ve	MS/MS D	Sampler
	12E-CE20-T3R1-AS-C	Suspended solids/Total dissolved solids	Surface Water	Lab QC	2/27/2013	10:30	1	1 L poly	4 C	N	JR

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	10	2-7	3-10								
/	7.12										
					1						
				1							

USEPA

DateShipped: 2/28/2013

CarrierName:

AirbillNo: Hand Deliver

# CHAIN OF CUSTODY RECORD

Lower Passaic River - CWCM Case Complete: False Cooler #: No: 2-022813-124344-0028

Lab: EPA-DESA laboratory Lab Address: 2890 Woodbridge Ave

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	MS/MSD
	12C-CE20-T067- BS-C	RM 6.7	Total Organic Carbon	Surface Water	2/28/2013	13:10	1	250 mL poly	4 C	N
	12C-CE20-T067- BS-C	RM 6.7	Particulate/Dissolved organic carbon	Surface Water	2/28/2013	13:10	1	250 mL poly	4 C	N
	12C-CE20-T067- BS-C	RM 6.7	Suspended solids/Total dissolved solids	Surface Water	2/28/2013	13:10	1	1 L poly	4 C	N
	12C-CE20-T067- BS-C	RM 6.7	Dissolved Hexavalent Chromium	Surface Water	2/28/2013	13:10	1	250 mL poly	4 C	N
	12C-CE20-T067- BS-CX	RM 6.7	Total Organic Carbon	Surface Water	2/28/2013	13:10	1	250 mL poly	4 C	N
	12C-CE20-T067- BS-CX	RM 6.7	Particulate/Dissolved organic carbon	Surface Water	2/28/2013	13:10	1	250 mL poly	4 C	N
	12C-CE20-T067- BS-CX	RM 6.7	Suspended solids/Total dissolved solids	Surface Water	2/28/2013	13:10	1	1 L poly	4 C	N
	12C-CE20-T067- BS-CX	RM 6.7	Dissolved Hexavalent Chromium	Surface Water	2/28/2013	13:10	1	250 mL poly	4 C	N
	12C-CE20-T102- AS-C	RM 10.2	Total Organic Carbon	Surface Water	2/28/2013	14:05	1	250 mL poly	4 C	N
	12C-CE20-T102- AS-C	RM 10.2	Particulate/Dissolved organic carbon	Surface Water	2/28/2013	14:05	1	250 mL poly	4 C	N
	12C-CE20-T102- AS-C	RM 10.2	Suspended solids/Total dissolved solids	Surface Water	2/28/2013	14:05	1	1 L poly	4 C	N

	SAMPLES TRANSFERRED FROM
Special Instructions: 2	CHAIN OF CUSTODY#

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	110	1-2	812								
	p. C	1 2	0.12								

Page 2 of 2

USEPA

DateShipped: 2/28/2013

CarrierName:

AirbillNo: Hand Deliver

# CHAIN OF CUSTODY RECORD

Lower Passaic River - CWCM
Case Complete: False
Cooler #:

No: 2-022813-124344-0028

Lab: EPA-DESA laboratory Lab Address: 2890 Woodbridge Ave

Lab#	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	MS/MSD
	12C-CE20-T102- AS-C	RM 10.2	Dissolved Hexavalent Chromium	Surface Water	2/28/2013	14:05	1	250 mL poly	4 C	N
										•

	SAMPLES TRANSFERRED FROM
Special Instructions: 2	CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	10	2 2-	. 0								
	2,00	1-28-	175								
	0										

USEPA

DateShipped: 3/4/2013

CarrierName:

AirbillNo: Hand Deliver

# CHAIN OF CUSTODY RECORD

Lower Passaic River - CWCM Case Complete: True Cooler #: No: 2-030413-082908-0034

Lab: EPA-DESA laboratory Lab Address: 2890 Woodbridge Ave

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservativ e	MS/MS D
	12C-CE21-T102-AS-C	RM 10.2	Total Organic Carbon	Surface Water	3/4/2013	10:00	1	250 mL poly	4 C	N
	12C-CE21-T102-AS-C	RM 10.2	Particulate/Dissolved organic carbon	Surface Water	3/4/2013	10:00	1	250 mL poly	4 C	N
	12C-CE21-T102-AS-C	RM 10.2	Suspended solids/Total dissolved solids	Surface Water	3/4/2013	10:00	1	1 L poly	4 C	N
	12C-CE21-T102-AS-C	RM 10.2	Dissolved Hexavalent Chromium	Surface Water	3/4/2013	10:00	1	250 mL poly	4 C	N

	SAMPLES TRANSFERRED FROM
Special Instructions:	CHAIN OF CUSTODY#

Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
100	7 -									
416	4-28	3-13								
										-
	Relinquished by	Relinquished by Date	Relinquished by Date Received by	Relinquished by Date Received by Date	Relinquished by Date Received by Date Time	Relinquished by Date Received by Date Time Items/Reason	Relinquished by Date Received by Date Time Items/Reason Relinquished By	Relinquished by Date Received by Date Time Items/Reason Relinquished By Date  A 2-23-13	Relinquished by Date Received by Date Time Items/Reason Relinquished By Date Received by	Relinquished by Date Received by Date Time Items/Reason Relinquished By Date Received by Date  A 2-23-13

USEPA

DateShipped: 2/27/2013

CarrierName:

AirbillNo: 794849146228

# CHAIN OF CUSTODY RECORD

Passaic - F2L Case Complete: False Cooler #: No: 2-022713-141127-0021

Lab #	Sample #	Location	Analyses	Matrix	Sample Type	Collected	Sample Time	Numb Cont	Container	Preservativ e	MS/MS
	12C-CE11-T102- AS-C	RM 10.2	Mercury - Dissolved	Surface Water	Field Sample	2/27/2013	13:05	1	500 mL glass	4 C	N
	12C-CE11-T102- AS-C	RM 10.2	Mercury - Hg	Surface Water	Field Sample	2/27/2013	13:05	1	500 mL glass	4 C	N
	12C-CE11-T102- AS-C	RM 10.2	Methyl Mercury	Surface Water	Field Sample	2/27/2013	13:05	1	500 mL glass	4 C	N
	12C-CE11-T102- AS-C	RM 10.2	Methyl Mercury-Dissolved	Surface Water	Field Sample	2/27/2013	13:05	1	500 mL glass	4 C	N
	12C-CE11-T102- BS-C	RM 10.2	Mercury - Dissolved	Surface Water	Field Sample	2/27/2013	10:27	1	500 mL glass	4 C	N
	12C-CE11-T102- BS-C	RM 10.2	Mercury - Hg	Surface Water	Field Sample	2/27/2013	10:27	1	500 mL glass	4 C	N
	12C-CE11-T102- BS-C	RM 10.2	Methyl Mercury	Surface Water	Field Sample	2/27/2013	10:27	1	500 mL glass	4 C	N
	12C-CE11-T102- BS-C	RM 10.2	Methyl Mercury-Dissolved	Surface Water	Field Sample	2/27/2013	10:27	1	500 mL glass	4 C	N
	12C-CE12-T3R1- AS-C	Tidal 3	Mercury - Dissolved	Surface Water	Field Sample	2/27/2013	07:00	1	500 mL glass	4 C	N
	12C-CE12-T3R1- AS-C	Tidal 3	Mercury - Hg	Surface Water	Field Sample	2/27/2013	07:00	1	500 mL glass	4 C	N
	12C-CE12-T3R1- AS-C	Tidal 3	Methyl Mercury	Surface Water	Field Sample	2/27/2013	07:00	1	500 mL glass	4 C	N

	SAMPLES TRANSFERRED FROM
Special Instructions:	CHAIN OF CUSTODY#

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	110	0-2	710								
	7.	2-2	1-13								

Page 2 of 2

USEPA

DateShipped: 2/27/2013

CarrierName:

AirbillNo: 794849146228

# CHAIN OF CUSTODY RECORD

Passaic - F2L Case Complete: False Cooler #: No: 2-022713-141127-0021

Sample #	Location	Analyses	Matrix	Sample Type	Collected	Sample Time	Numb Cont	Container	Preservativ e	MS/MS D
12C-CE12-T3R1- AS-C	Tidal 3	Methyl Mercury-Dissolved	Surface Water	Field Sample	2/27/2013	07:00	1	500 mL glass	4 C	N
12E-CE20-T3R1- AS-C	Tidal 3	Mercury - Dissolved	Surface Water	Lab QC	2/27/2013	10:30	2	500 mL glass	4 C	N
12E-CE20-T3R1- AS-C	Tidal 3	Mercury - Hg	Surface Water	Lab QC	2/27/2013	10:30	2	500 mL glass	4 C	N
12E-CE20-T3R1- AS-C	Tidal 3	Methyl Mercury	Surface Water	Lab QC	2/27/2013	10:30	2	500 mL glass	4 C	N
12E-CE20-T3R1- AS-C	Tidal 3	Methyl Mercury-Dissolved	Surface Water	Lab QC	2/27/2013	10:30	2	500 mL glass	4 C	N
					-					
	12C-CE12-T3R1- AS-C 12E-CE20-T3R1- AS-C 12E-CE20-T3R1- AS-C 12E-CE20-T3R1- AS-C 12E-CE20-T3R1-	12C-CE12-T3R1- Tidal 3 AS-C 12E-CE20-T3R1- Tidal 3	12C-CE12-T3R1-       Tidal 3       Methyl Mercury-Dissolved         AS-C       12E-CE20-T3R1-       Tidal 3       Mercury - Dissolved         12E-CE20-T3R1-       Tidal 3       Mercury - Hg         AS-C       12E-CE20-T3R1-       Tidal 3       Methyl Mercury         12E-CE20-T3R1-       Tidal 3       Methyl Mercury         12E-CE20-T3R1-       Tidal 3       Methyl Mercury-Dissolved	12C-CE12-T3R1-         Tidal 3         Methyl Mercury-Dissolved         Surface Water           12E-CE20-T3R1-         Tidal 3         Mercury - Dissolved         Surface Water           12E-CE20-T3R1-         Tidal 3         Mercury - Hg         Surface Water           12E-CE20-T3R1-         Tidal 3         Methyl Mercury         Surface Water           12E-CE20-T3R1-         Tidal 3         Methyl Mercury         Surface Water           12E-CE20-T3R1-         Tidal 3         Methyl Mercury-Dissolved         Surface	Type	Type	Type   Time	Type   Time   Cont	Type	Type   Time   Cont   e

	SAMPLES TRANSFERRED FROM
Special Instructions:	CHAIN OF CUSTODY#

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
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	fin	2-1	1 /								1
	100										
	-										

USEPA

DateShipped: 2/28/2013

CarrierName:

AirbillNo: 794860576513

# CHAIN OF CUSTODY RECORD

Passaic - F2L Case Complete: False Cooler #: No: 2-022813-125810-0031

Lab#	Sample #	Location	Analyses	Matrix	Sample Type	Collected	Sample Time	Numb Cont	Transfer and a second	Preservativ e	MS/MS D
	12C-CE20-T067- BS-C	RM 6.7	Mercury - Dissolved	Surface Water	Field Sample	2/28/2013	13:10	1	500 mL glass	4 C	N
	12C-CE20-T067- BS-C	RM 6.7	Mercury - Hg	Surface Water	Field Sample	2/28/2013	13:10	1	500 mL glass	4 C	N
	12C-CE20-T067- BS-C	RM 6.7	Methyl Mercury	Surface Water	Field Sample	2/28/2013	13:10	1	500 mL glass	4 C	N
	12C-CE20-T067- BS-C	RM 6.7	Methyl Mercury-Dissolved	Surface Water	Field Sample	2/28/2013	13:10	1	500 mL glass	4 C	N
	12C-CE20-T067- BS-CX	RM 6.7	Mercury - Dissolved	Surface Water	Field Duplicate	2/28/2013	13:10	1	500 mL glass	4 C	N
	12C-CE20-T067- BS-CX	RM 6.7	Mercury - Hg	Surface Water	Field Duplicate	2/28/2013	13:10	1	500 mL glass	4 C	N
	12C-CE20-T067- BS-CX	RM 6.7	Methyl Mercury	Surface Water	Field Duplicate	2/28/2013	13:10	1	500 mL glass	4 C	N
	12C-CE20-T067- BS-CX	RM 6.7	Methyl Mercury-Dissolved	Surface Water	Field Duplicate	2/28/2013	13:10	1	500 mL glass	4 C	N
									945		

	SAMPLES TRANSFERRED FROM
Special Instructions:	CHAIN OF CUSTODY #

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	100	0 00	12			ie.					
	12	2-28	13								
		1									1
											1

USEPA

DateShipped: 2/28/2013

CarrierName:

AirbillNo: 794860576693

# CHAIN OF CUSTODY RECORD

Passaic - F2L Case Complete: False Cooler #: No: 2-022813-125555-0030

Lab#	Sample #	Location	Analyses	Matrix	Sample Type	Collected	Sample Time	Numb Cont		Preservativ e	MS/MS D
	12C-CE20-T102- AS-C	RM 10.2	Mercury - Dissolved	Surface Water	Field Sample	2/28/2013	14:05	1	500 mL glass	4 C	N
	12C-CE20-T102- AS-C	RM 10.2	Mercury - Hg	Surface Water	Field Sample	2/28/2013	14:05	1	500 mL glass	4 C	N
	12C-CE20-T102- AS-C	RM 10.2	Methyl Mercury	Surface Water	Field Sample	2/28/2013	14:05	1	500 mL glass	4 C	N
	12C-CE20-T102- AS-C	RM 10.2	Methyl Mercury-Dissolved	Surface Water	Field Sample	2/28/2013	14:05	1	500 mL glass	4 C	N
										9	

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Special Instructions	3:						CHA	IN OF CUS	STODY#		
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	11/	2-29	5-13								
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USEPA

DateShipped: 3/4/2013

CarrierName:

AirbillNo: 794879805193

# CHAIN OF CUSTODY RECORD

Lower Passaic River - CWCM
Case Complete: True
Cooler #:

No: 2-030413-083438-0035

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	MS/MSD
	12C-CE21-T102- AS-C	RM 10.2	Mercury - Dissolved	Surface Water	3/4/2013	10:00	1	500 mL glass	4 C	N
	12C-CE21-T102- AS-C	RM 10.2	Mercury - Hg	Surface Water	3/4/2013	10:00	1	500 mL glass	4 C	N
	12C-CE21-T102- AS-C	RM 10.2	Methyl Mercury	Surface Water	3/4/2013	10:00	1	500 mL glass	4 C	N
	12C-CE21-T102- AS-C	RM 10.2	Methyl Mercury-Dissolved	Surface Water	3/4/2013	10:00	1	500 mL glass	4 C	N
			3-							

	SAMPLES TRANSFERRED FROM
Special Instructions:	CHAIN OF CUSTODY#

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	1/2	211	17								
	1.2	2-9-1	7		-						
4											
								4			

# USEPA Generic COC (REGION COPY)

DateShipped: 2/27/2013 CarrierName: FedEx AirbillNo: 794851224660

# CHAIN OF CUSTODY RECORD

Passaic - F2L Case Complete: False Cooler #: No: 2-022713-150515-0026

Lab: Shealy Environmental Lab Address: 106 Vantage Point Drive

Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Sample Type
12C-CE11- T102-AS-C	Surface Water/ JR	Grab	Metals plu(21), Dis Metplu(21)	N (4 C), O (4 C) (2)	RM 10.2	02/27/2013 13:05	Field Sample
12C-CE11- T102-BS-C	Surface Water/ JR	Grab	Metals plu(21), Dis Metplu(21)	N (4 C), O (4 C) (2)	RM 10.2	02/27/2013 10:27	Field Sample
12C-CE12- T3R1-AS-C	Surface Water/ JR	Grab	Metals plu(21), Dis Metplu(21)	N (4 C), O (4 C) (2)	Tidal 3	02/27/2013 07:00	Field Sample
12E-CE20- T3R1-AS-C	Surface Water/ JR	Grab	Metals plu(21), Dis Metplu(21)	N (4 C), O (4 C) (2)	Tidal 3	02/27/2013 10:30	Lab QC

Shipment for Case Complete? N				
Samples Transferred From Chain of Custody #				

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	120	22	7								
	1/1	22%	-13								

# USEPA Generic COC (REGION COPY)

DateShipped: 2/28/2013 CarrierName: FedEx AirbillNo: 794860089921

# **CHAIN OF CUSTODY RECORD**

Passaic - F2L Case Complete: False Cooler #: No: 2-022813-125250-0029

Lab: Shealy Environmental Lab Address: 106 Vantage Point Drive

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lah	Phone: 8037919700	١
Lab	FIIUITE. 003/919/00	Į

Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	Sample Type
12C-CE20- T067-BS-C	Surface Water/ JR	Grab	Metals plu(21), Dis Metplu(21)	N (4 C), O (4 C) (2)	RM 6.7	02/28/2013 13:10	Field Sample
12C-CE20- T067-BS-CX	Surface Water/ JR	Grab	Metals plu(21), Dis Metplu(21)	N (4 C), O (4 C) (2)	RM 6.7	02/28/2013 13:10	Field Duplicate
12C-CE20- T102-AS-C	Surface Water/ JR	Grab	Metals plu(21), Dis Metplu(21)	N (4 C), O (4 C) (2)	RM 10.2	02/28/2013 14:05	Field Sample
	10						
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Special Instructions:	Shipment for Case Complete? N				
Special Instructions:	Samples Transferred From Chain of Custody #				
Analysis Key: Metals plu=Metals Ti, Dis Metplu=Dissolved Metals TI					

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	1 10	00	- 17								
	4.1	1	579								
			,								

# USEPA Generic COC (LAB COPY)

DateShipped: 3/4/2013 CarrierName: FedEx AirbillNo: 794879846377

# CHAIN OF CUSTODY RECORD

Lower Passaic River Case Complete: True Cooler #: No: 2-030413-084223-0036

Lab: Shealy Environmental Lab Address: 106 Vantage Point Drive

Sample #	Matrix/Sampler	Coll. Method	Analysis/Turnaround	Tag/Preservative/Bottles	Station Location	Collected	For Lab Use Only	
12C-CE21- T102-AS-C	12C-CE21- Surface Water/ Gra T102-AS-C JR		Metals plu(21), Dis Metplu(21)	N (4 C), O (4 C) (2)	RM 10.2	03/04/2013 10:00		
				~				
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pecial Instructions:	Shipment for Case Complete? Y				
Special Instructions:	Samples Transferred From Chain of Custody #				
Analysis Key: Metals plu=Metals_Ti, Dis Metplu=Dissolved Metals TI					

Items/Reason	Relinquished by	Date	Received by	Date	Time	Items/Reason	Relinquished By	Date	Received by	Date	Time
	Dn	21	110								
	Jell	24	75								4